ADDITIONAL FEE:

Please charge any insufficiency of fee, or credit any excess, to Deposit Account No. 50-0427.

R E M A R K S

The Office Action issued August 30, 2007 has been received and its contents have been carefully considered.

Submitted herewith is a substitute Declaration for this application which states that the undersigned inventors acknowledge a duty to disclose to the U.S. Patent and Trademark Office all information known to be material to patentability, in accordance with 37 CFR §1.56.

The amendments to the specification set forth on pages 4 and 5 of applicants' Preliminary Amendment, previously referred to on page 7, have been corrected as referring to page 8 of the original specification. A substitute Specification is attached, for the convenience of the Examiner.

Claim 1, the only independent claim of this application, has been rejected under 35 USC §103(a) as being unpatentable over the U.S. Patent No. 5,167,218 to Deakin

(hereinafter "Deakin"). This rejection is respectfully traversed for the following reasons:

Claim 1 recites a heliothermal flat collector module that includes:

(a) a self-supporting sheet metal panel having two sides and which is adapted to be irradiated by sunlight on one side,

(b) a register-shaped arrangement of capillary tubes, separated from one another at a distance for the flow of a fluid medium, the arrangement being positioned on the side opposite the side of the sheet metal panel to be irradiated, and

(c) a thermally insulating insulation core that is also positioned on the opposite side of the sheet metal panel to be irradiated.

According to the present invention:

(1) the capillary tubes of the register-shaped arrangement are placed in contact with the surface of the insulation core,

(2) the insulation core is bonded to the sheet metal panel by means of a non-metallic, elastic adhesive layer, and

(3) the capillary tubes are at least partially embedded into the adhesive layer between the sheet metal panel and the insulation core.

The U.S. Patent No. 5,167,218 to Deakin, discloses a heliothermal flat plate collector module with the elements (b), (c) above, but not the element (a) or the features (1) and (3).

As the Examiner points out, the collector in Deakin is not "self supporting" (element (a)) but, the Examiner contends, this feature would be obvious to a person skilled in the art, especially if a layer of molten metal is to be applied. This may be correct; however, if this were true, the molten metal layer would have to be inflexible to provide the self-supporting properties of the metal sheet panel. Therefore, elastic resins could not be used as adhesives for the molten metal layers to produce a self-supporting metal sheet panel.

Deakin thus teaches away from the present invention which requires an elastic adhesive layer (feature (2)). Deakin states only that the adhesive or coating of the absorber layer can be made of polyester of polyester resins, which are normally quite rigid. He gives no hint that this layer can, or should be, elastic.

The elastic adhesive layer is a significant technical feature of the present invention. Stresses, resulting from the different temperatures of the panel and/or the capillary tubes, can be equalized, so that cracks, deformation or leakage can be prevented, when the adhesive layer between insulation core and sheet metal panel is elastic.

As noted on page 2 of the application specification, the objective of the present invention to improve the state of the art of heliothermic flat plate collector modules, so that cracks, deformations and leakage resulting of thermal stresses can be prevented.

This objective is achieved by at least partly embedding the small capillary tubes within the elastic adhesive layer, which is located between the metal panel and the insulating material.

In addition, the feature (1), recited in claim 1 and noted above, is neither disclosed or suggested by Deakin. Feature (1) requires that the capillary tubes of the register-shaped arrangement be placed in contact with the surface of the insulation core. "In contact" means that there is nothing in between the tubes and the insulating core. A direct contact is required. This feature is best illustrated in applicants' Figures 1 to 5.

Deakin teaches arranging a layer of molten metal between the capillary tubes and the insulation core, as may be seen in Figures 2 to 9 of his patent. Also, Figure 4 shows a layer of metal between the capillary tubes and the insulation core. Note the following description of Fig. 4 (column 5, lines 36-52):

> "The absorber tubes 16 are embedded in the absorber plate 17, by spraying a layer of molten metal 15 directly on substrate 11."

Therefore, there can be no contact between the capillary tubes of the register arrangement and the surface of the insulation core. The scale of Figure 4 is actually too small to show the molten metal layer. However, Figure 5, which shows an expanded cross-sectional view of Figure 4, and the corresponding portion of the description (column 5, lines 44-52), make this clear.

> "...where the absorber plate is formed directly to the insulating material by spraying molten metal as described herein...an initial base coating 21 has been added to the surface of 11."

Recapitulating, it may be seen, that in total three technical features, features (1), (2) and (3), are neither disclosed nor suggested by the U.S. Patent No. 5,167,218 to Deakin. This combination of features is also not disclosed

in any of the other prior art references cited by the Examiner (but not applied against claim 1).

In conclusion, applicants submit herewith an Information Disclosure Statement calling attention to all of the references cited in applicants' corresponding International Application under the Patent Cooperation Treaty and national stage applications filed in Canada and Europe. As the Examiner will confirm, none of the references cited therein discloses a flat thermal collector having the combination of features (1), (2) and (3) as set forth in applicants' claim 1.

Accordingly, this application is believed to be in condition for immediate allowance. A formal Notice of Allowance is respectfully solicited.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Services as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

JANUARY 30, 2008

MILDE & HOFFBERG, LLP

By _____

Date JANUARY 30, 2008